

# USING SET MODEL FOR LEARNING ADDITION OF INTEGERS

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## **Abstract**

This study aims to investigate how set model can help students' understanding of addition of integers in fourth grade. The study has been carried out to 23 students and a teacher of IVC SD Iba Palembang in January 2015. This study is a design research that also promotes PMRI as the underlying design context and activity. Results showed that the use of set models that is packaged in activity of recording of financial transactions in two color chips and card game can help students to understand the concept of zero pair, addition with the same colored chips, and cancellation strategy.

**Keywords:** addition of integers, set models, PMRI, design research

## **Abstrak**

Penelitian ini bertujuan untuk mengetahui bagaimana *set model* dapat membantu pemahaman siswa tentang penjumlahan bilangan bulat di kelas IV SD. Penelitian dilaksanakan kepada siswa dan guru kelas IVC SD Iba Palembang pada bulan Januari 2015. Metode yang digunakan adalah *design research*. PMRI mendasari desain konteks dan aktivitas. Hasil penelitian menunjukkan penggunaan set model yang dikemas dalam aktivitas mencatat transaksi keuangan dalam keping dua warna dan permainan *remi bilbul* dapat membantu siswa memahami konsep *zero pair*, penambahan dengan keping sewarna, dan *cancellation strategy*.

**Kata Kunci:** penjumlahan bilangan bulat, *set model*, PMRI, *design research*

Integer is a very important topic for students to learn, due to its usefulness in solving various problems in daily life (Musser, Burger, & Peterson, 2005: 321) as well as a prerequisite material for studying other concepts, like cartesian coordinates (Van de Walle, Karp, & Bay-Williams, 2008: 426) and algebra (Sheffield & Cruikshank, 1996 in Musser, Burger, & Peterson, 2005: 321). However, studies showed that many students still consider this topic difficult. They are often confused to determine the greater numbers and to determine the direction of movement when performing arithmetic operations (Van de Walle, Karp, and Bay-Williams, 2008). This often confused teachers especially to make the learning of integers joyful and meaningful (Putri, 2011).

In order to design learning of addition of integers, two aspects are considered fundamental, such as, historical aspects and learning aspects. Historically, integers has been used by Chinese since 200 BC (Musser, Burger, & Peterson, 2005: 319) in financial transactions using different wood colors (Merzbach & Boyer, 2011: 180). Negative number as part of integers in this case is defined as a number that should be reduced from the quantity or amount of unpaid (Purnomo, 2014).